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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,912	02/27/2002	Masatoshi Ueda	AK-376XX	7091

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WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP
TEN POST OFFICE SQUARE
BOSTON, MA 02109

EXAMINER

NGUYEN, CAM N

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/069,912

Applicant(s)

UEDA ET AL.

Examiner

Cam N Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 & 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 1, 6-10, & 14-17 are objected to because of the following informalities:
 - A. In claim 1, lines 3-4, "a steel material making the reformer" should be --a steel material--.
 - B. In claim 6, lines 3-4, "a steel material making the reformer" should be --a steel material--.
 - C. In claim 7, the claim should be re-written as follows:

--A manufacturing method of a fuel reformer comprising the steps of: forming a Cr oxide layer on a surface of raw steel material by heat treating said raw steel material in an oxidizing atmosphere of 600 to 1000°C--.
 - D. In claim 8, the claim should be re-written as follows:

--A manufacturing method of a fuel reformer comprising a step of: forming a Cr oxide layer on a surface of raw steel material by heat treating said raw steel material in an oxidizing atmosphere of 600 to 1000°C--.
 - E. In claim 9, the claim should be re-written as follows:

--A manufacturing method of a fuel reformer comprising the steps of: forming a thin film having a Cr concentration higher than a Cr concentration of a base material on a surface of raw steel material, and thereafter forming a Cr oxide layer on the surface of

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said raw steel material by heat treating said raw steel material in an oxidizing atmosphere of 350 to 650°C--.

F. In claim 10, the claim should be re-written as follows:

--A manufacturing method of a fuel reformer comprising the steps of: forming a thin film having a Cr concentration higher than a Cr concentration of a base material on a surface of raw steel material, and thereafter forming a Cr oxide layer on the surface of said raw steel material by heat treating said raw steel material in an oxidizing atmosphere of 350 to 650°C--.

G. In claim 14, lines 3-4, "steel material making the reformer" should be --a steel material--.

H. In claim 15, lines 3-4, "steel material making the reformer" should be --a steel material--.

I. In claim 16, lines 3-4, "steel material making the reformer" should be --a steel material--.

J. In claim 17, lines 3-4, "steel material making the reformer" should be --a steel material--.

Appropriate correction is required.

2. Claims 8 & 10 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 7 & 9. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

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Claim 8 is a duplicate of claim 7, and claim 10 is a duplicate of claim 9 because the process as recited in claims 8 & 10 are the same as the process recited in claims 7 & 9.

Claim Rejections - 35 USC § 112 (Second Paragraph)

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It appears that the claims define "a catalyst structure" or "a catalyst", wherein a Cr oxide layer is formed on at least a part of a surface of steel material. However, the claims are called for "a fuel reformer". It is considered "a fuel reformer" is "an apparatus", "a system", or "a device". There is no limitation in the claims defining "a fuel reformer" as recited in the claims. Thus, renders the claims vague and indefinite.

Claim Rejections - 35 USC § 102(b)

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-5, 7-8, & 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Chart et al., "hereinafter Chart", (US Pat. 3,923,696).

Chart discloses a catalyst structure having a metallic base or substrate and a catalytically active surface supported thereby, the improvement comprising a layer of chromium oxide interposed between the substrate and the catalytically active material (see col. 2, ln 31-36). The layer of chromium oxide is produced by oxidation of an electrodeposit of chromium at least about 4 microns thick. Good results are obtained when the chromium layer is about 5 to about 15 microns thick and envelopes every surface of the substrate exposed to the gas stream or subject to exposure to the gas stream upon spalling of the catalytic layer (see col. 2, ln 51-58). A chromium oxide layer of about 10 microns thick is formed by subjecting to an oxidation atmosphere at about 980°C for 3 hours (see col. 3, ln 48-52). The metallic base including the steel materials (see col. 6, ln 1-4).

Regarding claims 1-4, Chart discloses the claimed fuel reformer (or catalyst structure) and the claimed process of preparing thereof, thus anticipates the claims.

Regarding claims 5 & 11-13, the claimed Cr oxide layer thickness is met by the teaching of the reference since the disclosed thickness falls within the claimed thickness range (see above).

Regarding claims 7-8, the claimed heat treating temperatures are met by the teaching of the reference since the disclosed heat treating temperature falls within the claimed temperature range (see above).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6, 9-10, & 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chart et al., "hereinafter Chart", (US Pat. 3,923,696).

Chart discloses a fuel reformer (or catalyst structure) and a process of preparing thereof, except for "a thin film having a Cr concentration higher than a Cr concentration of a base material on a surface of raw steel material" and "oxidizing atmosphere of 350 to 650°C".

However, it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have predetermined the optimum concentration of Cr and heating temperature in such process to achieve a catalyst structure having the desired Cr concentration levels since such parameters, the metal concentration and heating temperature, are result effective variables. See, In re Boesch.

Citations

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Magnier (US Pat. 4,673,663), Chuang et al. (US Pat. 5,851,948), Pugh (US Pat. 3,920,583), Uytterhoeven et al. (US Pat. 4,515,905), Nakamura et al. (US Pat. 4,752,599) are cited for related art.

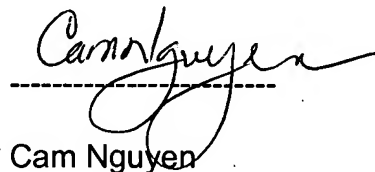
Conclusion

10. Claims 1-17 are originally pending. Claims 1-17 are rejected. No claims are allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cam Nguyen, whose telephone number is (703) 305-3923. The examiner can normally be reached on M-F from 8:30 am. to 6:00 pm, with alternative Monday off.

The appropriate fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 (before finals) and (703) 872-9311 (after-final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Cam Nguyen

Primary Examiner

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Nguyen/cnn 

October 20, 2003